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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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			EXAMINER LEUNG, JENNIFER A	
			ART UNIT 1764	PAPER NUMBER
DATE MAILED: 10/25/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,218

Applicant(s)

DARLING, SCOTT

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment submitted on August 17, 2006 has been received and carefully considered. Claims 1-11 are cancelled. Claims 12-18 are newly added and are currently active.

Claim Objections

2. Claim 12 is objected to because of the following informalities:

In claim 12, line 9: "separates" should be changed to --separators--.

In claim 12, lines 18-19: "said at least one particle separator" should be changed to --said at least two particle separators--, as set forth in line 9.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 12-14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zubrod (US 4,665,865) in view of Hyppanen et al. (US 5,281,398).

Regarding claim 12, Zubrod (FIGs. 1-10) discloses an apparatus comprising:
a reaction chamber (i.e., combustion chamber or firebox 2, with first gas flue 3; FIGs. 1, 2)
having a fluidized bed of solid particulates therein (e.g., fluidized coal granules; column 3, lines 43-47), and being defined by a ceiling (i.e., intermediate ceiling 4), a bottom (i.e., combustion chamber floor 21) and walls (i.e., front wall 12, rear wall 7 and sidewalls 34), at least partially formed by water tube panels (i.e., tube walls provided with gas-tight and vertical tubes; see FIGs.);

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means for introducing fluidizing gas (i.e., nozzles **22** communicating with air inlet line **23**);

at least one discharge opening (i.e., outlet opening **25**; FIG. 2) for removing a particle suspension of exhaust gases and solid particles from the reaction chamber **2/3**;

at least one particle separator (i.e., cyclone **5**; FIG. 1) connected to the discharge opening **25**, the separator **5** having a gas discharge opening in an upper part thereof connected to a discharge duct (not labeled, see FIG. 1 and 2);

a heat recovery section (e.g., reheat surfaces **8, 9**; feed water preheater **10**; FIG. 1); and

a gas plenum (i.e., cross flue **11**) defined by an enclosure comprising a ceiling (i.e., wall **24**), a bottom (i.e., intermediate ceiling **4**) and walls (i.e., sidewalls **34**, front wall **12**) positioned above and integrated with the reaction chamber **2/3**, for directing cleaned exhaust from the separator **5** to the heat recovery section **8/9/10**, said plenum **11** having at least one exhaust gas inlet opening (i.e., inlet opening **40**) arranged in the wall (i.e., in front wall **12**) for receiving cleaned exhaust gases from the discharge duct of the separator **5** and directing the cleaned exhaust gases to the plenum **11**, said plenum **11** being connected to a connecting channel (i.e., second gas flue **6**) downstream of the plenum **11** for leading cleaned exhaust from the plenum **11** to the heat recovery section **8/9/10**;

wherein the enclosure of the gas plenum **11** is formed by water tube panels as extensions of the water tube panels of the reaction chamber **2/3** (see FIG. 2), and wherein the gas plenum **11** is divided into at least two separate chambers by at least one partition that is formed by at least one water tube panel as an extension of at least one of the water tube panels of the reaction chamber (i.e., as best seen in FIG. 2, a first chamber is located to the left of water tubes **35/36**, and a second chamber is located to the right of water tubes **35/36**, wherein tubes **35/36** define an

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extension of at least one water tube panel of the reaction chamber).

Zubrod is silent as to the provision of at least two particle separators 5, wherein each of the particle separators has a discharge opening connected via a discharge duct to an exhaust gas inlet opening in the wall of the gas plenum 11.

In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide at least two particle separators in the apparatus of Zubrod, on the basis of suitability for the intended use, because the duplication of part was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). Furthermore, the configuration of at least two particle separators is conventional, as evidenced by Hyppanen et al. In particular, Hyppanen et al. teaches an apparatus comprising at least two particle separators 112a, 112b, etc. (see FIG. 9; column 11, lines 54-60), which is desirable when the amount of particles to be separated is great (see column 6, lines 33-40).

Regarding claim 13, the water tube panel forming a first one of the walls (e.g., front wall 12) of the reaction chamber 2/3 comprises first and second water tubes 14 and 13, respectively;

at least a portion of the water tube panel that forms the bottom 4 of the enclosure of the gas plenum 11 is formed as an extension of the first water tubes 14 of the water tube panel that forms the first wall 12 of the reaction chamber 2/3; and

at least a portion of the water tube panel that forms one of the walls of the enclosure (i.e., the wall containing opening 40) of the gas plenum 11 is formed as an extension of the second water tubes 13 of the water tube panel that forms the first wall 12 of the reaction chamber 2/3. (see FIG. 2; column 4, line 38 to column 5, line 29).

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Regarding claim 14, at least a portion of the water tube panel 35/36 that forms the partition of the gas plenum 11 is formed as an extension of the first water tubes 14 of the water tube panel that forms the first wall 12 of the reaction chamber (see FIG. 2).

Regarding claim 16, Zubrod discloses that the water tube panels that form the enclosure of the gas plenum 11 comprise water tubes (e.g., water tubes 13, 14, 16, 17, 18), and the enclosure of the gas plenum 11 is at least partially formed as an extension of the water tube panel that forms one of the walls (e.g., walls 12, 7) of the reaction chamber 2/3 (see FIG. 2). Zubrod discloses the extension being formed in such a way that a portion of the water tubes (e.g., tubes 18) of the water tube panel that forms the wall of the reaction chamber 2/3 is connected at the upper edge of the wall of the reaction chamber to a header (i.e., intermediate ceiling header 20), from which header the water tubes 18 are extended to form a portion of the enclosure (i.e., the wall portion 4) of the gas plenum 11.

Regarding claim 17, Zubrod is silent as to the provision of at least three particle separators 5, wherein the discharge duct of at least one of the particle separators is connected directly to the connecting channel 6, downstream of the gas plenum 11. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide at least three particle separators in the apparatus of Zubrod, on the basis of suitability for the intended use, because the duplication of part was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). Furthermore, the configuration of at least three particle separators is conventional, as evidenced by Hyppanen et al. In particular, Hyppanen et al. teaches an apparatus comprising at least three particle separators 112a, 112b, 112c, etc. (see FIG. 9; column 11, lines 54-60), which is desirable

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when the amount of particles to be separated is great (see column 6, lines 33-40).

Regarding claim 18, as can be seen in FIG. 2 of Zubrod, the connecting channel 6 widens in the flow direction of the cleaned exhaust gases (i.e., the cross-sectional area of channel 6 is greater than the cross-sectional area of cross flue 11).

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zubrod (US 4,665,865) in view of Cooke (US 5,870,976).

Although Zubrod is silent as to the walls of the enclosure of the gas plenum 11 and reaction chamber 2/3 being formed by water tubes according to the instantly claimed configurations, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select one of the claimed configuration of the water tubes for the enclosures in the apparatus of Zubrod, on the basis of suitability for the intended use thereof, because the claimed tubing configurations are conventional in the art, as evidenced by Cooke '976. In particular, Cooke '976 (FIG. 4, 5) teaches an arrangement wherein the water tube panel that forms a first one of the walls of an enclosure (i.e., defining the bottom most chamber) comprises first and second water tubes (i.e., tubes 33 and 31, respectively); at least a portion of the water tube panel that forms the bottom of another enclosure (i.e., the chamber located immediately above the bottom most chamber) is formed as an extension of the first water tubes 33 of the water tube panel that forms the first wall of the enclosure (i.e., the right wall of the bottom chamber); at least a portion of the water tube panel that forms one of the walls of the another enclosure (i.e., the left wall of the chamber immediately above the bottom most chamber; FIG. 5) is formed as an extension of the first water tubes 33 of the water tube panel that forms the first wall of the enclosure; and at least a portion of the water tube panel that forms a

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partition of the another enclosure is formed as an extension of the second water tubes 31 of the water tube panel that forms the first wall of the enclosure (i.e., tubes 31 also form a portion of the right wall of the bottom chamber; see FIG. 4).

Response to Arguments

5. Applicant's arguments filed August 17, 2006 have been fully considered but they are not persuasive. On page 8, lines 13-19, Applicants argue,

“... the cross-flue in the Zubrod patent is intersected by a large number of separate vertical suspensions. Applicant submits that such suspensions do not improve the overall rigidity of the construction, and they are difficult to protect by refractory lining. Applicant submits, therefore, that the arrangement in the Zubrod patent does not teach or suggest salient features of Applicant's present invention, as recited in independent claim 12, including the compact construction, which is rigid and durable without separate supports.”

The Examiner respectfully disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which Applicant relies (for example, the lack of vertical suspensions or separate supports) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. As stated in the rejection, these vertical suspensions structurally read on the “at least one partition” instantly recited in the claims.

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Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung 
October 23, 2006


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PRIMARY EXAMINER